

ABSTRACT

An integrated fuel cell comprises a fuel electrode catalyst layer on one surface on an electrolyte membrane, and an air electrode catalyst layer on the other surface of the membrane. First and second gas diffusion layers are disposed on the outer surfaces of the fuel and air electrode catalyst layers, respectively. First and second separators each having one or more gas flow channels, are in contact with the outer surfaces of the first gas diffusion layer and second diffusion layer, respectively. The layer elements are clamped together to form a single cell, and the cell is configured with a mechanism for restraining reactant gas from flowing into adjacent gas flow channels via the first or second gas diffusion layers, preventing generation of water droplets that would otherwise plug the gas flow channels.